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REMARKSI. Status of the claims

Claims 1-14 are pending.

II. Rejection of claims 1-14

Claims 1-14 under 35 U.S.C. § 103(a) stand rejected as being unpatentable over either U.S. Patent No. 5,876,489 to Kunisaki et al. ("Kunisaki") or U.S. Patent No. 5,840,245 to Coombs et al. ("Coombs") in view of U.S. Patent No. 6,436,442 to Woo et al. ("Woo").

The outstanding office action states that either Kunisaki or Coombs disclose an air filter medium containing antimicrobial agents. Kunisaki and Coombs differ from Applicants' claimed invention, according to the examiner, because neither reference teaches the use of a microbiologically effective amount of a polymeric biguanide or salt. The examiner then combines the teachings of Kunisaki or Coombs with Woo, which, according to the outstanding office action, discloses a filter medium containing a microbiologically effective amount of a polymeric biguanide or salt. The office action then concludes that it would have been obvious to combine these teachings because polymeric biguanide is well known in the art as disinfectant or sanitizer or effective antimicrobial agent. Applicants respectfully traverse this rejection.

It is applicants' position that the secondary reference Woo doesn't disclose filter media of any kind, much less air filter media. To the contrary, col. 1, lines 15-25 of Woo make it clear that the invention of that patent employs compositions comprising functionally-available cyclodextrin and cyclodextrin-incompatible material for controlling malodor including malodor on inanimate objects including fabrics, including carpets, and hard surfaces including garbage cans, ceilings, walls, carpet padding, **air filters**, and the like.

Thus the Woo reference discloses treating malodor on the hard surfaces of air filters, not on the interior or filter media of the filters. Further, the **biguanide** compounds recited in this reference are disclosed in the context of being cyclodextrin-compatible compounds that are useful in **treating fabrics** (col. 27, lines 37-56). This reference does not disclose or suggest the use of biguanidies even to treat the hard surfaces of air filters, much less in the context of filter media. Accordingly, Woo is not suggestive of the present invention.

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Further, the combination of Woo with the primary references is improper. To combine two or more references in establishing an obviousness rejection, there must be some teaching, suggestion, or motivation to combine the references found either explicitly or implicitly in references themselves or in the knowledge generally available to one of ordinary skill in the art. See MPEP § 2143.01. Applicants submit that no such motivation is present in the disclosure of either Kunisaki or Coombs to add the biguanide compounds taught in Woo.

Kunisaki relates to a germ-removing filter for sterilizing air to be supplied to a sterile room. See col. 1, lines 8-14. The germ-removing filter includes a filter substrate and an antimicrobial material dispersedly mixed into the filter substrate. The antimicrobial material comprises an antimicrobial fiber bonded or exchanged with a silver ions. See col. 3, lines 1-8. The silver ions are exchanged or bonded with exchange or bonding groups on the filter substrates. See col. 3, lines 9-15.

There is no disclosure in Kunisaki in favor of the use of additional antimicrobials of any kind, other than the silver ions and the antimicrobial fibers, in the context of the germ-removing filter, much less a polymeric biguanide as instantly claimed.

To the contrary, instead of suggesting that additional antimicrobial agents may be added, Kunisaki suggests combining the Kunisaki filter with a HEPA filter (high-efficiency particulate air filter). See col. 5, line 24 to col. 6, line 3. The Kunisaki germ-removing filter may be disposed upstream, of or inside, the HEPA filter. See col. 5, lines 28-30. Therefore, the Kunisaki solution to patentee's objective of killing additional germs does not envision using an additional antimicrobial, but rather an additional filter, namely a HEPA filter.

Since there is no teaching or suggestion in Kunisaki that additional antimicrobial agents may be added to the filter, one skilled in the art would not have the requisite motivation to combine the teachings of Kunisaki with the teachings of a secondary reference to support the use of an additional antimicrobial agent.

Moreover, the combination of Woo with Kunisaki is improper since these two references relate to disparate fields of technology. Woo relates to controlling malodor on fabrics and hard surfaces, whereas Kunisaki relates to providing a germ-free environment in a sterile room.

Coombs, like Kunisaki, also fails to provide one skilled in the art with the motivation to combine its teachings with a reference disclosing the antimicrobial agents taught in Woo.

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Coombs relates to a method of reducing the amount of microorganisms present in contaminated air by providing a fiberglass containing air filtration media containing an antimicrobially effective amount of an inorganic antimicrobial agent. See col. 2, lines 52-56.

Coombs does not teach or suggest that an organic antimicrobial agent, such as a biguanide, may be used with the Coombs method. In fact, Coombs *teaches away* from using organic antimicrobial agents because, according to Coombs, organic antimicrobial agents are subject to volatilization, codistillation, and/or leaching into downstream air. See col. 2, lines 26-33. Coombs states that it is an objective to provide an antimicrobial agent for air filtration media and rigid filters which will not volatilize nor codistill as a result of normal operating conditions to further contaminate the air stream. See col. 2, lines 34-38. Accordingly, Coombs uses inorganic antimicrobial agents, such as inorganic salts of transition metals. See col. 4, lines 36-49.

Further, the working examples of Coombs teach away from the use of organic antimicrobials, and in favor of inorganic antimicrobials, from an efficacy standpoint. For example, the concluding sentence of example 3 of Coombs notes that the "results indicate that the inorganic antimicrobials are as good as and in some cases better antimicrobial agents than the competitive organic agents." Clearly Coombs teaches away from using organic antimicrobial agents. Accordingly, upon reading Coombs one skilled in the art would have no motivation to alter the Coombs process by adding organic antimicrobial agents, such as those taught in Woo, since such alteration would run counter to Coombs' teachings away from the use of organic antimicrobials and in favor of inorganic ones. Assuming that the combination of Coombs with Woo were proper, which it is not, the combination would not be in favor of the present invention, but rather in favor of the use of inorganic antimicrobials (Coombs) to clean fabrics or hard surfaces (Woo). If organic antimicrobial agents were added to the Coombs process, the skilled artisan would have no expectation that the Coombs process would work successfully. Indeed, in view of the Coombs disclosure, one skilled in the art would likely conclude that adding organic antimicrobial agents to the Coombs process would cause the Coombs process to volatilize and codistill.

While both Kunisaki and Coombs disclose air filters containing an antimicrobial, neither reference teaches or suggests that additional antimicrobial agents may be added to the systems of

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those references. Without the motivation to combine and the expectation of success—both of which are missing in both primary references—the obviousness rejection cannot be sustained. Combination of the teachings of either of the primary references with Woo is improper, for the reasons given above. Woo does not teach or suggest that the biguanides disclosed therein may be used with a filter medium in an air filter, as instantly claimed, but rather to treat malodor on fabrics.

In view of the above, Applicants respectfully request withdrawal of the outstanding rejection of the instant claims under 35 U.S.C. § 103, and an early receipt of a Notice of Allowance thereof.

III. Conclusion

Should any issues remain unresolved, the Examiner is encouraged to contact the undersigned attorney for Applicants at the telephone number indicated below in order to expeditiously resolve any remaining issues.

Respectfully submitted,

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